



## Strategic Initiative 4 – Accelerate Low-Level Waste and Mixed Waste Disposition

### Subproject Description

After several decades of uranium metals production supporting the U.S. Defense Program, millions of pounds of waste materials remained when the mission of Fernald changed in 1989 from uranium production to environmental restoration. Specifically, 6.56 million cubic feet of low-level waste and 186,583 gallons of low-level liquid mixed waste required treatment and/or off-site disposal, and 31 million net pounds of nuclear product inventory remained for processing or disposition.



The Nuclear Material, Low-Level Waste, and Mixed Waste Disposition subproject consists of characterizing, sampling, treating (as necessary), packaging, shipping, and disposing of nuclear materials, low-level radioactive waste, and mixed waste inventories.

### Execution Strategy

Several options were pursued to dispose of nuclear product and materials including transferring them to other DOE facilities for programmatic use, sale of product with market value to the private sector, and reclassification (and disposal) of some of the materials as waste. Efforts to sell or transfer product were initially successful in reducing inventory to 15.2 million pounds by August 1998. At that time, the DOE Oak Ridge Operations Office agreed to assume the stewardship and marketing role for Fernald's nuclear product inventory to facilitate site remediation. The Portsmouth Gaseous Diffusion Plant was chosen as the storage site and the transfer of 8.4 million net pounds of product to Portsmouth ended in May 2002, thereby concluding Fernald's nuclear material disposition.

The subproject continues to characterize and package low-level wastes for disposal. The subproject inspects the different waste streams to determine which of the three available disposal options is best: disposal on site in the On-Site Disposal Facility; transfer to the Waste Pits subproject for bulk off-site shipment via rail; or packaged for truck transport for disposal at the Nevada Test Site. The subproject has been successful in diverting inventory to the less costly On-Site Disposal Facility (trash, scrap metals, asbestos contaminated material) and to the Waste Pits subproject (soils, sludges, some residues). Since Fernald initiated waste shipments to the Nevada Test Site in 1985, 6.1 million cubic feet of waste have been transported to the Nevada Test Site in over 4,700 truckloads. Fernald will continue to ship to the Nevada Test Site those low-level wastes that do not meet the On-Site Disposal Facility waste acceptance criteria.

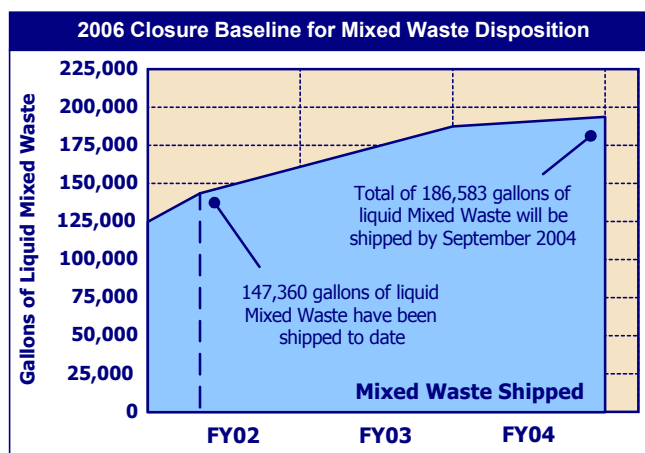
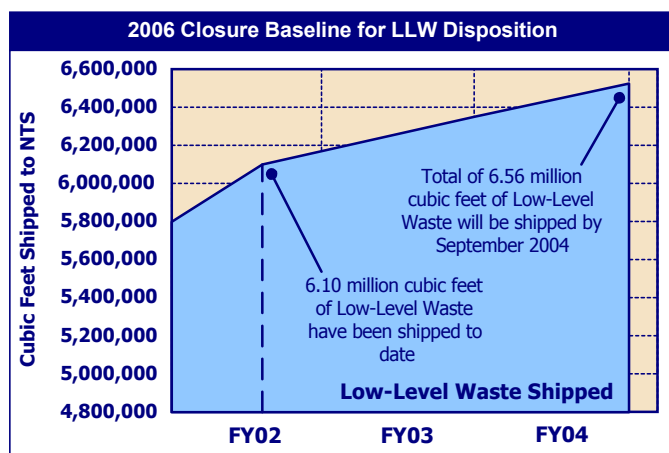
The subproject will continue to ship organic mixed waste streams for treatment at the M&EC facility in Oak Ridge, Tennessee under DOE's Broad Spectrum Contract. Additionally, Fernald is seeking proposals to deploy vacuum thermal desorption technology in FY03 to treat specific organic mixed waste streams. Inorganic mixed waste streams will be shipped to and treated by the consortium represented under the Broad Spectrum Agreement. Fernald's Toxic Substance Control Act (TSCA) wastes will continue to be shipped to the Oak Ridge TSCA Incinerator. Tennessee approves each batch inventory for shipment.

Similar to Fernald's strategy to consolidate nuclear materials at Portsmouth, Fernald will continue to explore options for consolidating relatively small inventories of organic and inorganic mixed wastes and miscellaneous analytical samples/analytical source materials at other DOE facilities. While the 2006 plan currently assumes these materials will be dispositioned or treated directly by Fernald, significant cost and schedule advantages could be realized if these waste streams can be consolidated elsewhere in conjunction with materials from other sites.

### New Strategies to Achieve 2006 Closure

In order to accelerate site closure from 2009 to 2006, the following initiatives were developed for the Low-Level Waste and Mixed Waste Disposition subproject:

- Utilize more cost- and schedule-effective waste disposition pathways, including greater use of the On-Site Disposal Facility and Waste Pits subprojects for off-site disposal
- Maximize usage of DOE facilities (e.g., TSCA incinerator at Oak Ridge), Hanford, Nevada Test Site, and existing DOE contracts for use of commercial disposal facilities



*Low-level waste and mixed waste disposition will be complete in September 2004.*

Fernald's low-level and mixed waste streams must be removed from the Plant 1 Pad by September 2003 to permit remediation of the pad and underlying soil. Following these activities, there will continue to be additional waste requiring off-site disposal, including various quantities of organic mixed wastes and sample disposition wastes, as well as newly-generated TSCA wastes and demolition debris.

The subproject also administers Fernald's Waste Minimization and Pollution Prevention program, which helps to meet the goals and expectations of the EPA and stakeholders by reducing the volume of waste generated and recycling as much material as practical to minimize the amount requiring disposal. Fernald employees have recycled 10,500 LaserJet and fax cartridges, 110,000 pounds of aluminum cans, and over 1 million pounds of paper to date.

#### Current Subproject Status

The Low-Level Waste and Mixed Waste Disposition subproject is wrapping up packaging of three waste streams for Nevada Test Site disposal: uranium, fissile excepted and depleted metal, and thorium contaminated trash. To date, 6.1 million cubic feet of material have been shipped to the Nevada Test Site and 147,360 gallons of liquid mixed waste were transferred to TSCA incinerator. Additional activities that are currently being implemented include:

- Sorting and packaging asbestos material for disposition in the On-Site Disposal Facility or at the Nevada Test Site

- Installing a portable processing unit for packaging fissile compounds for Nevada Test Site disposition
- Releasing fissile compounds for off-site disposition through the Waste Pits subproject.

The disposition of nuclear material is 100% complete, low-level waste is 93% complete, and mixed waste is 79% complete. To complete the clearing of the Plant 1 Pad by September 2003, 460,000 cubic feet of low-level waste remain to be shipped to the Nevada Test Site and 282,810 cubic feet will go to the On-Site Disposal Facility. Remaining legacy and newly generated waste streams will be disposed by September 2004.

#### Subproject Status:

- Nuclear material disposition has been completed
- Low-level waste disposition is 93% complete
- Mixed waste disposition is 79% complete
- 6.1 million cubic feet of low-level waste have been shipped to Nevada Test Site
- 147,360 gallons of mixed waste were transferred off-site for incineration
- Cost to Complete: \$87 million
- Subproject will be complete in September 2004

#### Key Actions and Responsibilities

The following table lists the key actions needed to accelerate this subproject to meet 2006 site closure. Also included are the responsible organizations, the status of the key action, and the date that the key action is needed. The key actions for all eight strategic initiatives (subprojects) are compiled in Attachment 2.

Key Actions and Responsibilities for Low-Level Waste and Mixed Waste Disposition			
Action	Responsibility	Status	Date Needed
Accelerate clearing of the Plant 1 Pad to allow for D&D and soil remediation	Fluor Fernald	In progress	9/30/03